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(54) SERVICE PROCESSING METHOD AND DEVICE

(57) The present application provides a service processing method and apparatus. The method includes: receiving a service object acquisition request sent by a service request end, where the service object acquisition request includes an initiation location of the service request end; receiving service object recommendation information sent by a service response end, where the service object recommendation information includes a response location of the service response end; and when a distance between the initiation location and the response location is less than a predetermined distance, and a time difference between a requesting time of the service object acquisition request and a sending time of the service object recommendation information is less than a predetermined time difference, sending a target service object that matches the service object recommendation information to the service request end. No friend addition operation is needed in the service object recommendation solution provided in the present application. For a user, an operation is convenient and information exchange efficiency is relatively high.

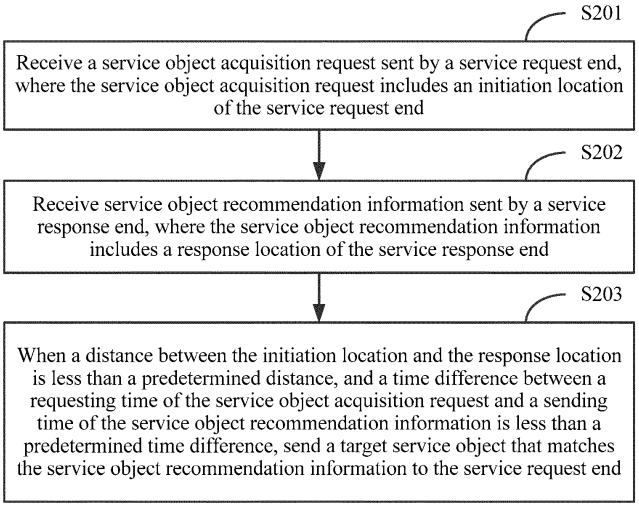

FIG. 2

EP 3 407 568 A1

Description

TECHNICAL FIELD

[0001] The present application relates to the field of communications technologies, and in particular, to service processing methods and apparatuses.

BACKGROUND

[0002] With rapid development of Internet technologies, more services such as stock trading and fund trading can be implemented by using a terminal device. In related technologies, many service scenarios include information exchange between users. How to improve information exchange efficiency and convenience has become a problem to be resolved.

SUMMARY

[0003] In view of this, the present application provides service processing methods and apparatuses.

[0004] Specifically, the present application is implemented by using the following technical solutions:

A service processing method is provided, and the method includes: receiving a service object acquisition request sent by a service request end, where the service object acquisition request includes an initiation location of the service request end; receiving service object recommendation information sent by a service response end, where the service object recommendation information includes a response location of the service response end; and when a distance between the initiation location and the response location is less than a predetermined distance, and a time difference between a requesting time of the service object acquisition request and a sending time of the service object recommendation information is less than a predetermined time difference, sending a target service object that matches the service object recommendation information to the service request end.

[0005] Optionally, the method further includes: after receiving the service object acquisition request sent by the service request end, storing a mapping relationship between identifier information of the service request end and the initiation location; and the sending a target service object that matches the service object recommendation information to the service request end includes: sending the target service object that matches the service object recommendation information to the service request end based on the identifier information of the service request end.

[0006] Optionally, the sending a target service object that matches the service object recommendation information to the service request end includes: when the service object recommendation information includes a service object, sending the included service object as the target service object to the service request end; or when the service object recommendation information does not include a service object, determining a service object bound to the service response end based on identifier information of the service response end, and sending the bound service object as the target service object to the service request end.

[0007] Optionally, the service object recommendation information is sent after the service response end receives a predetermined gesture instruction.

[0008] Optionally, the service object acquisition request is a self-select stock acquisition request, the service object recommendation information is self-select stock recommendation information, and the target service object is a self-select stock.

[0009] A service processing apparatus is provided, and the apparatus includes: a request receiving unit, configured to receive a service object acquisition request sent by a service request end, where the service object acquisition request includes an initiation location of the service request end; a response receiving unit, configured to receive service object recommendation information sent by a service response end, where the service object recommendation information includes a response location of the service response end; and a service recommendation unit, configured to send a target service object that matches the service object recommendation information to the service request end when a distance between the initiation location and the response location is less than a predetermined distance and a time difference between a requesting time of the service object acquisition request and a sending time of the service object recommendation information is less than a predetermined time difference.

[0010] Optionally, the apparatus further includes: a location storage unit, configured to store a mapping relationship between identifier information of the service request end and the initiation location after the service object acquisition request sent by the service request end is received, where the service recommendation unit is configured to send the target service object that matches the service object recommendation information to the service request end based on the identifier information of the service request end.

[0011] Optionally, the service recommendation unit is configured to: send an included service object as the target service object to the service request end when the service object recommendation information includes the service object; or determine a service object bound to the service response end based on identifier information of the service response end and send the bound service object as the target service object to the service request end when the service object recommendation information does not include a service object.

[0012] Optionally, the service object recommendation information is sent after the service response end receives a predetermined gesture instruction.

[0013] Optionally, the service object acquisition request is a self-select stock acquisition request, the service object recommendation information is self-select

stock recommendation information, and the target service object is a self-select stock.

[0014] It can be seen from the previous descriptions that, in the present application, after receiving the service object recommendation information sent by the service response end, the server can send the target service object that matches the service object recommendation information to a service request end that satisfies both a distance constraint and a time constraint. No friend addition operation is needed in the whole service object recommendation process. For a user, an operation is convenient and information exchange efficiency is relatively high.

BRIEF DESCRIPTION OF DRAWINGS

[0015]

FIG. 1 is a schematic diagram illustrating an application scenario of service processing, according to an example implementation of the present application;

FIG. 2 is a flowchart illustrating a service processing method, according to an example implementation of the present application;

FIG. 3 is a flowchart illustrating another service processing method, according to an example implementation of the present application;

FIG 4 is a schematic structural diagram illustrating a service processing apparatus, according to an example implementation of the present application; and

FIG 5 is a schematic structural diagram illustrating a service processing apparatus, according to an example implementation of the present application.

DESCRIPTION OF IMPLEMENTATIONS

[0016] Example implementations are described here in detail, and examples are presented in the accompanying drawings. When the following description relates to the accompanying drawings, unless specified otherwise, same numbers in different accompanying drawings represent a same element or similar elements. The following example implementations do not represent all implementations in accordance with the present application. Instead, the implementations are merely examples of apparatuses and methods in accordance with some aspects of the present application that are described in detail in the appended claims.

[0017] The terms used in the present application are merely for illustrating implementations, and are not intended to limit the present application. The terms "a", "the", and "this" of singular forms used in the present application and the appended claims are also intended to include plural forms, unless otherwise specified in the context. It should be further understood that, the terms "and" and "or" used in this specification indicate and include any or all possible combinations of one or more related items.

[0018] It should be understood that although terms "first", "second", "third", etc. may be used in the present application to describe various types of information, the information is not limited by these terms. These terms are merely used to differentiate information of a same type. For example, without departing from the scope of the present application, first information can be referred to as second information. Similarly, second information can be referred to as first information. Depending on the context, for example, word "if' used here can be explained as "while", "when", or "in response to determining".

[0019] In related technologies, when strangers exchange information, one can share service information with the other party after adding the other party as a friend. However, such implementation is relatively complex, and a user can add the other party as a friend and share service information after performing steps of requesting, confirming, approving, etc. Further, in some service scenarios, strangers have a weak relationship, and two parties that exchange information may not want the other party to be a friend. Therefore, it is not convenient to exchange information through adding friends. Alternatively, a user can orally notify the other party of related service information, and the other party can obtain service information through searching. However, such implementation has low efficiency and accuracy.

[0020] The present application provides a service processing solution, so as to more conveniently implement a high-efficiency information exchange process.

[0021] FIG. 1 is a schematic diagram illustrating an application scenario of service processing, according to an example implementation of the present application.

[0022] Referring to FIG. 1, a server is usually set up by a service provider. The service provider can provide a user with various services by using the server to implement related service operations. The user can register a corresponding user account on the server in advance. For detailed registration processes, references can be made to implementation methods provided in related technologies. Details are omitted in the present application.

[0023] In this implementation of the present application, a terminal device can be an intelligent device that can connect to a network, for example, a mobile phone, a tablet computer, or a personal digital assistant (PDA). The user can interact with the server by using an application (APP) installed on the terminal device, so as to implement various service operations. For ease of description, in subsequent implementations of the present application, processes of interactions between the APP installed on the terminal device and the server are referred to as processes of interactions between the terminal device and the server.

[0024] Referring back to FIG. 1, in the example implementation of the present application, a first user performs a related service operation by using a first terminal de-

vice. For example, the first user can register a first account on the server in advance, and perform the related service operation based on the first account. A second user performs a related service operation by using a second terminal device. For example, the second user can register a second account on the server in advance, and perform the related service operation based on the second account. In actual applications, the first user and the second user may not register the user accounts, and the server can provide services for the first user and the second user based on service information provided by the first user and service information provided by the second user. Implementations are not limited in the present application.

[0025] FIG. 2 is a flowchart illustrating a service processing method, according to an example implementation of the present application.

[0026] Referring to FIG. 2, the service processing method can be applied to the server shown in FIG. 1, and includes the steps below.

[0027] Step 201: Receive a service object acquisition request sent by a service request end, where the service object acquisition request includes an initiation location of the service request end.

[0028] In this implementation, the service is usually a service object recommendation service, for example, self-select stock recommendation, Weibo followee recommendation, or friend recommendation.

[0029] In this implementation, for ease of differentiation, an acquisition end of the service object is referred to as the service request end, and a user that requests to obtain the service object can send the service object acquisition request to the server by using the service request end. For example, the user that requests to obtain the service object can trigger a service object acquisition function by clicking a predetermined button or entering a predetermined gesture. The service request end can obtain the current initiation location, add the initiation location to the service object acquisition request, and send the service object acquisition request to the server.

[0030] In this implementation, after receiving the service object acquisition request, the server can store a mapping relationship between identifier information of the service request end and the initiation location. The identifier information can include a mobile phone number, an account ID, etc.

[0031] The application scenario shown in FIG. 1 is used as an example. Assume that the first terminal device is the service request end, the first terminal device can obtain the current initiation location after receiving a request instruction of the first user, add the initiation location to the service object acquisition request, and send the service object acquisition request to the server.

[0032] Step 202: Receive service object recommendation information sent by a service response end, where the service object recommendation information includes a response location of the service response end.

[0033] In this implementation, for ease of differentiation, a recommendation end of the service object can be referred to as the service response end, and a user that recommends the service object can send the service object recommendation information to the server by using the service response end. For example, after offline receiving a related request of the user that requests to obtain the service object, the user that recommends the service object can trigger a service object recommendation function by clicking a predetermined button or entering a predetermined gesture. The service response end can obtain the current response location, and send the response location and a service object that is followed by the service response end and that is used as the recommended service object to the server. The service object can include a self-select stock, a Weibo followee, a friend, etc.

[0034] Optionally, in an example of the present application, the service response end can add all service objects followed by the service response end to the service object recommendation information, and send the service object recommendation information to the server. Alternatively, the service response end can add a service object selected by the user to the service object recommendation information, and send the service object recommendation information to the server. Implementations are not limited in the present application.

[0035] Using again the application scenario shown in FIG. 1 as an example. Assume that the second terminal device is the service response end, the first user can orally query the second user about information related to a service object of the second user. The second user can input a response instruction for the service object by using the second terminal device, and then the second terminal device can obtain the current response location, add the response location and the service object followed by the second user to the service object recommendation information, and send the service object recommendation information to the server.

[0036] Step 203: When a distance between the initiation location and the response location is less than a predetermined distance, and a time difference between a requesting time of the service object acquisition request and a sending time of the service object recommendation information is less than a predetermined time difference, send a target service object that matches the service object recommendation information to the service request end.

[0037] In this implementation, after receiving the service object recommendation information sent by the service response end, the server can determine a service request end that satisfies both a distance constraint and a time constraint, and then send the target service object that matches the service object recommendation information to the service request end. The distance constraint can be that the distance between the initiation location and the response location is less than the predetermined distance, and the time constraint can be that the time difference between the requesting time of the

service object acquisition request and the sending time of the service object recommendation information is less than the predetermined time difference. The predetermined distance and the predetermined time difference can be set by a developer, for example, 20 meters or 1 minute. Implementations are not limited in the present application.

[0038] Optionally, in an example of the present application, after receiving the service object recommendation information sent by the service response end, the server can first determine service request ends that satisfy a distance constraint, and then determine a service request end that satisfies a time constraint in the service request ends that satisfy the distance constraint. In another example of the present application, after receiving the service object recommendation information sent by the service response end, the server can first determine service request ends that satisfy a time constraint, and then determine a service request end that satisfies a distance constraint in the service request ends that satisfy the time constraint. Implementations are not limited in the present application.

[0039] Optionally, in an example of the present application, after receiving the service object recommendation information sent by the service response end, the server can first determine a service object that matches the service object recommendation information. For ease of description, the service object that matches the service object recommendation information can be referred to as the target service object. After determining the target service object, the server can send the target service object to the service request end that satisfies both the distance constraint and the time constraint. For example, the target service object is sent to the service request end based on the account ID of the service request end. The server can determine, in the following two manners, the target service object that matches the service object recommendation information.

[0040] In the first manner, the service object recommendation information includes the target service object. In this implementation, after receiving the service object recommendation information, the server can first determine whether the service object recommendation information includes a service object, for example, whether the service object recommendation information includes identifier information of a service object. If yes, the server can determine the service object included in the service object recommendation information as the target service object that matches the service object recommendation information, and send the target service object to the service request end.

[0041] In the second manner, the service object recommendation information does not include the target service object. After receiving the service object recommendation information, if the service object recommendation information is determined as not including a service object, the server can obtain identifier information of the service response end, obtain a service object bound to the service response end based on the identifier information, and send the bound service object as the target service object to the service request end. The server can obtain the service object bound to the identifier information based on the identifier information of the service response end from a database or a platform that stores a service object. Implementations are not limited in the present application.

[0042] It can be seen from the previous descriptions that, in the present application, after receiving the service object recommendation information sent by the service response end, the server can send the target service object that matches the service object recommendation information to the service request end that satisfies both the distance constraint and the time constraint. No friend addition operation is needed in the whole service object recommendation process. For a user, an operation is convenient and information exchange efficiency is relatively high.

[0043] Optionally, in another example of the present application, after sending the target service object to the service request end, the server can delete the stored mapping relationship between the identifier information of the service request end and the initiation location. Details are omitted in the present application.

[0044] The following describes an implementation process of the present application with reference to a specific application scenario.

[0045] Assume that a service related to the present application is a self-select stock recommendation service, a target service object is a self-select stock, the service object acquisition request is a self-select stock acquisition request, and the service object recommendation information is self-select stock recommendation information. Using FIG. 1 as an example. Assume that the first terminal device is a service request end, and the second terminal device is a service response end. Referring to FIG. 3, the service processing method provided in the present application can include the steps below.

[0046] Step 301: The first terminal device sends a self-select stock acquisition request to a server.

[0047] In this implementation, assume that the first user and the second user are strangers met in a stock trading hall, and the first user wants to know a self-select stock followed by the second user, the first user can trigger a self-select stock acquisition function, for example, the first user can click a predetermined button in stock software, and then the first terminal device can obtain a current initiation location, add the initiation location to the self-select stock acquisition request, and send the self-select stock acquisition request to the server.

[0048] Step 302: The second terminal device sends self-select stock recommendation information to the server.

[0049] In this implementation, the first user can orally notify the second user that the first user wants to learn the self-select stock followed by the second user. If the second user is willing to notify the first user of the self-

select stock, the second user can trigger a self-select stock recommendation function by turning the mobile phone, and then the second terminal device can obtain a current response location, add the response location and the self-select stock followed by the second user to the self-select stock recommendation information, and send the self-select stock recommendation information to the server.

[0050] Step 303: The server sends a self-select stock included in the self-select stock recommendation information to the first terminal device.

[0051] In this implementation, after receiving the self-select stock recommendation information sent by the second terminal device, the server can determine a service request end that is less than 10 meters from the second terminal device as the first terminal device, where a time difference between a requesting time of a received self-select stock acquisition request and a sending time of the self-select stock recommendation information is less than 1 minute, and then send the self-select stock that is followed by the second user and included in the self-select stock recommendation information to the first terminal device. After receiving the self-select stock, the first terminal device can display the self-select stock to the first user, and the first user can follow the self-select stock of the second user.

[0052] In the previous implementation, the server can implement the self-select stock recommendation process by using the method provided in the method implementation shown in FIG. 2. Details are not described here again.

[0053] Corresponding to the implementation of the previous service processing method, the present application further provides an implementation of a service processing apparatus.

[0054] The implementation of the service processing apparatus provided in the present application can be applied to a server. The apparatus implementation can be implemented by using software, hardware, or a combination of hardware and software. Software implementation is used here as an example. As a logical apparatus, the software is formed by reading a corresponding computer program instruction in a non-volatile memory and running the instruction in a memory by a processor in a server in which the software is located. In terms of hardware implementation, as shown in FIG. 4, FIG. 4 is a diagram illustrating a hardware structure of a server in which a service processing apparatus in the present application is located. In addition to a processor, a memory, a network interface, and a non-volatile memory shown in FIG. 4, the server in which the apparatus according to this implementation is located can also include other hardware based on actual functions of the server. Details are omitted here for simplicity.

[0055] FIG. 5 is a schematic structural diagram illustrating a service processing apparatus, according to an example implementation of the present application.

[0056] Referring to FIG. 5, the service processing apparatus 400 can be applied to the server shown in FIG. 4. The service processing apparatus 400 includes a request receiving unit 401, a response receiving unit 402, a service recommendation unit 403, and a location storage unit 404.

[0057] The request receiving unit 401 is configured to receive a service object acquisition request sent by a service request end, where the service object acquisition request includes an initiation location of the service request end.

[0058] The response receiving unit 402 is configured to receive service object recommendation information sent by a service response end, where the service object recommendation information includes a response location of the service response end.

[0059] The service recommendation unit 403 is configured to send a target service object that matches the service object recommendation information to the service request end when a distance between the initiation location and the response location is less than a predetermined distance and a time difference between a requesting time of the service object acquisition request and a sending time of the service object recommendation information is less than a predetermined time difference.

[0060] The location storage unit 404 is configured to store a mapping relationship between identifier information of the service request end and the initiation location after the service object acquisition request sent by the service request end is received.

[0061] The service recommendation unit 403 is configured to send the target service object that matches the service object recommendation information to the service request end based on the identifier information of the service request end.

[0062] Optionally, the service recommendation unit 403 is configured to: send an included service object as the target service object to the service request end when the service object recommendation information includes the service object; or determine a service object bound to the service response end based on identifier information of the service response end and send the bound service object as the target service object to the service request end when the service object recommendation information does not include a service object.

[0063] Optionally, the service object recommendation information is sent after the service response end receives a predetermined gesture instruction.

[0064] Optionally, the service object acquisition request is a self-select stock acquisition request, the service object recommendation information is self-select stock recommendation information, and the target service object is a self-select stock.

[0065] For detailed implementation processes of units in the apparatus, references can be made to corresponding method implementations described earlier. Details are omitted here for simplicity.

[0066] The apparatus implementation can correspond to the earlier described method implementation. For re-

lated parts, references can be made to corresponding descriptions in the method implementations. The described apparatus implementation is merely an example. The units described as separate parts may or may not be physically separate, and parts displayed as units may or may not be physical units, can be located in one position, or can be distributed on a plurality of network units. Some or all the modules can be selected based on actual implementations, to achieve the objectives of the solutions of the present application. A person of ordinary skill in the art can understand and implement the implementations of the present application without creative efforts.

[0067] The previous descriptions are merely example implementations of the present application, but are not intended to limit the present application. Any modification, equivalent replacement, or improvement made without departing from the spirit and principle of the present application should fall within the protection scope of the present application.

Claims

1. A service processing method, wherein the method comprises:

   receiving a service object acquisition request sent by a service request end, wherein the service object acquisition request comprises an initiation location of the service request end;
   receiving service object recommendation information sent by a service response end, wherein the service object recommendation information comprises a response location of the service response end; and
   when a distance between the initiation location and the response location is less than a predetermined distance, and a time difference between a requesting time of the service object acquisition request and a sending time of the service object recommendation information is less than a predetermined time difference, sending a target service object that matches the service object recommendation information to the service request end.

2. The method according to claim 1, wherein the method further comprises:

   after receiving the service object acquisition request sent by the service request end, storing a mapping relationship between identifier information of the service request end and the initiation location; and
   the sending a target service object that matches the service object recommendation information to the service request end comprises:
   sending the target service object that matches the service object recommendation information to the service request end based on the identifier information of the service request end.

3. The method according to claim 1, wherein the sending a target service object that matches the service object recommendation information to the service request end comprises:

   when the service object recommendation information comprises a service object, sending the comprised service object as the target service object to the service request end; or
   when the service object recommendation information does not comprise a service object, determining a service object bound to the service response end based on identifier information of the service response end, and sending the bound service object as the target service object to the service request end.

4. The method according to claim 1, wherein:
   the service object recommendation information is sent after the service response end receives a predetermined gesture instruction.

5. The method according to claim 1, wherein:
   the service object acquisition request is a self-select stock acquisition request, the service object recommendation information is self-select stock recommendation information, and the target service object is a self-select stock.

6. A service processing apparatus, wherein the apparatus comprises:

   a request receiving unit, configured to receive a service object acquisition request sent by a service request end, wherein the service object acquisition request comprises an initiation location of the service request end;
   a response receiving unit, configured to receive service object recommendation information sent by a service response end, wherein the service object recommendation information comprises a response location of the service response end; and
   a service recommendation unit, configured to send a target service object that matches the service object recommendation information to the service request end when a distance between the initiation location and the response location is less than a predetermined distance and a time difference between a requesting time of the service object acquisition request and a sending time of the service object recommendation information is less than a predetermined time difference.

7. The apparatus according to claim 6, wherein the apparatus further comprises:

a location storage unit, configured to store a mapping relationship between identifier information of the service request end and the initiation location after the service object acquisition request sent by the service request end is received, wherein
the service recommendation unit is configured to send the target service object that matches the service object recommendation information to the service request end based on the identifier information of the service request end.

8. The apparatus according to claim 6, wherein:
the service recommendation unit is configured to: send a comprised service object as the target service object to the service request end when the service object recommendation information comprises the service object; or determine a service object bound to the service response end based on identifier information of the service response end and send the bound service object as the target service object to the service request end when the service object recommendation information does not comprise a service object.

9. The apparatus according to claim 6, wherein:
the service object recommendation information is sent after the service response end receives a predetermined gesture instruction.

10. The apparatus according to claim 6, wherein:
the service object acquisition request is a self-select stock acquisition request, the service object recommendation information is self-select stock recommendation information, and the target service object is a self-select stock.

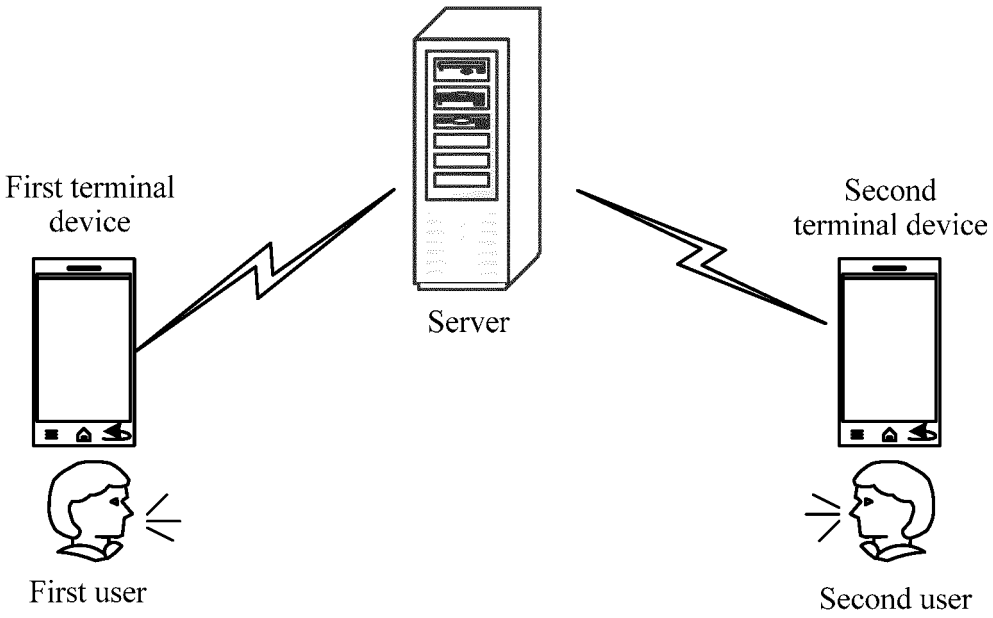
First terminal device
Server
Second terminal device
First user
Second user

FIG. 1

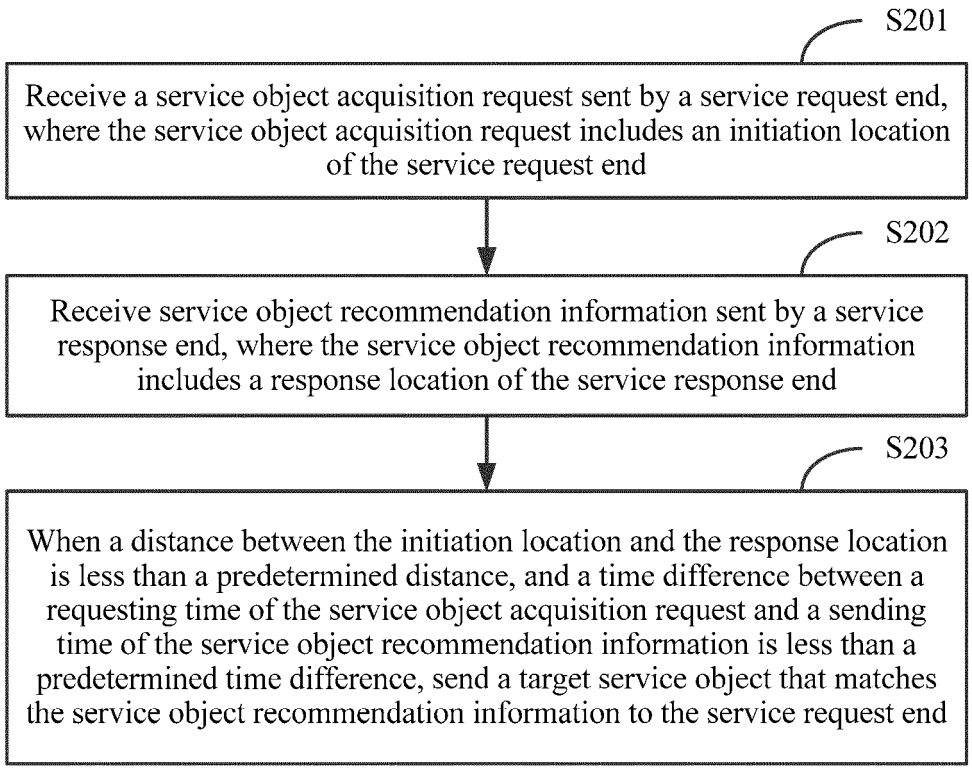
S201
Receive a service object acquisition request sent by a service request end, where the service object acquisition request includes an initiation location of the service request end
S202
Receive service object recommendation information sent by a service response end, where the service object recommendation information includes a response location of the service response end
S203
When a distance between the initiation location and the response location is less than a predetermined distance, and a time difference between a requesting time of the service object acquisition request and a sending time of the service object recommendation information is less than a predetermined time difference, send a target service object that matches the service object recommendation information to the service request end

FIG. 2

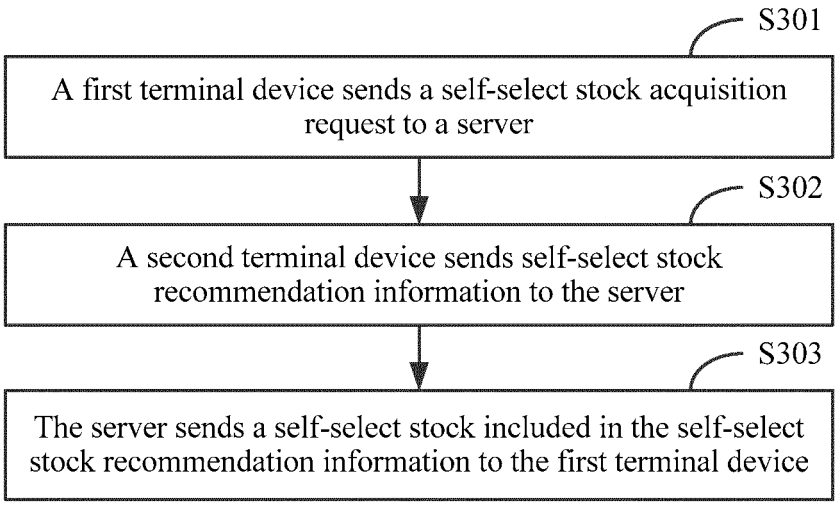
S301
A first terminal device sends a self-select stock acquisition request to a server
S302
A second terminal device sends self-select stock recommendation information to the server
S303
The server sends a self-select stock included in the self-select stock recommendation information to the first terminal device

FIG. 3

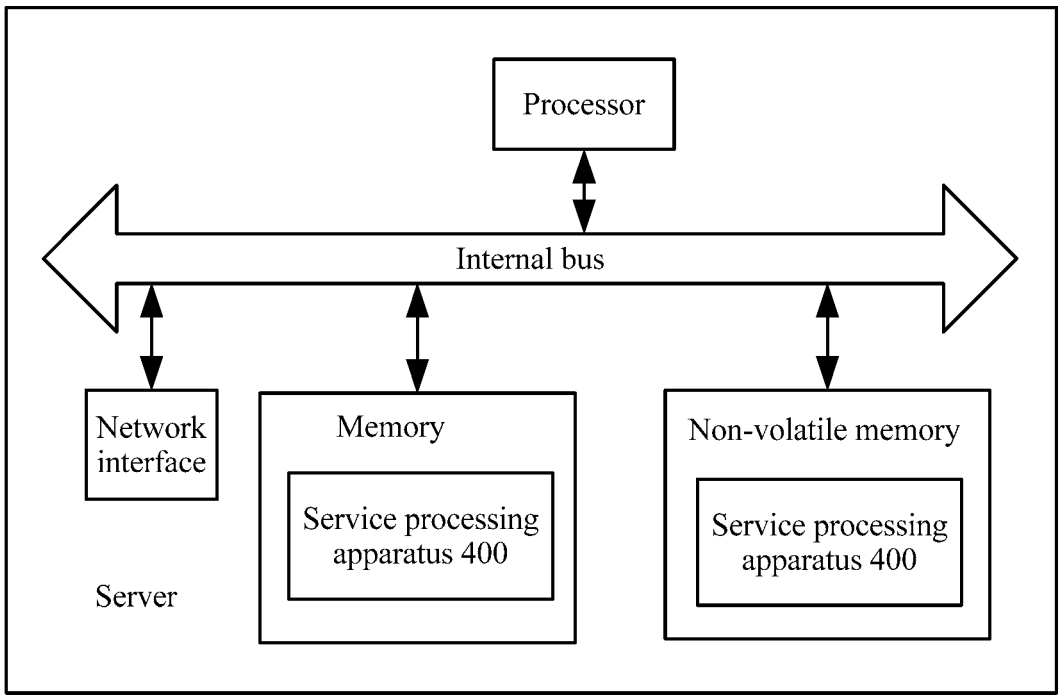
Processor
Internal bus
Network interface
Memory
Service processing apparatus 400
Non-volatile memory
Service processing apparatus 400
Server

FIG. 4

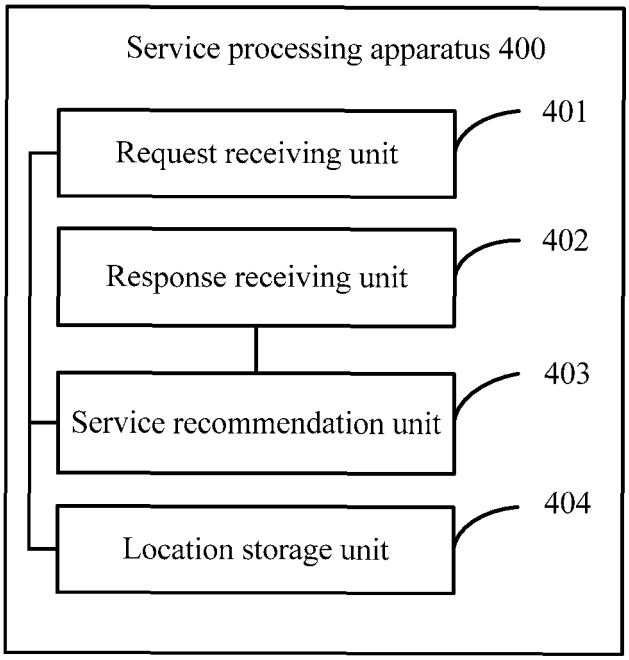
Service processing apparatus 400
Request receiving unit
401
Response receiving unit
402
Service recommendation unit
403
Location storage unit
404

FIG. 5

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2017/070800

A. CLASSIFICATION OF SUBJECT MATTER

H04L 29/08 (2006.01) i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

H04L; H04Q; H04W

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CNPAT, CNKI, WPI, EPODOC, GOOGLE, IEEE: request, reply, response, commend, object, service, obtain, locat+, distance, time, difference, ID, identi+

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	CN 104079471 A (TENCENT TECHNOLOGY SHENZHEN CO., LTD.) 01 October 2014 (01.10.2014) description, paragraphs [0040]-[0047]	1-10
Y	CN 102546656 A (TENCENT TECHNOLOGY SHENZHEN CO., LTD.) 04 July 2012 (04.07.2012) description, paragraphs [0029]-[0037]	1-10
A	WO 2013159639 A1 (TENCENT TECHNOLOGY SHENZHEN CO., LTD.) 31 October 2013 (31.10.2013) the whole document	1-10
A	CN 104009980 A (TENCENT TECHNOLOGY SHENZHEN CO., LTD.) 27 August 2014 (27.08.2014) the whole document	1-10
A	CN 103369009 A (TENCENT TECHNOLOGY SHENZHEN CO., LTD.) 23 October 2013 (23.10.2013) the whole document	1-10

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
07 March 2017	01 April 2017
Name and mailing address of the ISA State Intellectual Property Office of the P. R. China No. 6, Xitucheng Road, Jimenqiao Haidian District, Beijing 100088, China Facsimile No. (86-10) 62019451	Authorized officer LIU, Jing Telephone No. (86-10) 52871160

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2017/070800

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		WO 2015172711 A1	19 November 2015
CN 103369009 A	23 October 2013	US 2014115042 A1	24 April 2014
		JP 2015518204 A	25 June 2015
		WO 2013143413 A1	03 October 2013

Form PCT/ISA /210 (patent family annex) (July 2009)